

Section II. REMARKS

Amendment of Claim 18 and Addition of New Claims 32-66

Claim 18 has been amended herein for consistency and appropriate antecedent basis with claim 16 from which it depends.

New claims 32-66 have been added herein to encompass various aspects and features of the invention disclosed in the present application. No new matter (35 USC 132) has been added.

Rejection of Claims on Reference Grounds, and Traversal Thereof

In the January 30, 2004 Office Action, claims 1-31 then pending in the application were rejected on reference grounds, including:

a rejection of claims 1-31 under 35 USC 103(a) as unpatentable over Zugibe in view of McCarrick et al.; and

a rejection of claims 1-31 under 35 USC 103(a) as unpatentable over Leatherman.

It is noted that such rejections fail to recognize the cancellation of claims 17 and 25-29 in applicants' amendment filed November 18, 2003 responding to the August 18, 2003 Office Action.

Accordingly, the foregoing rejections are traversed in light of the ensuing remarks concerning the patentable distinction of claims 1-16, 18-24 and 30-64 now pending in the application.

Patentable Distinction of the Claims as Amended/Added Over the Cited References

The present invention apparatus is broadly recited in independent claim 1:

1. A liquid handling system comprising:
a container having an interior for holding a liquid;
a storage means coupled to a portion of said container and for storing information relating to the liquid;
and
a connector for physically coupling to the portion and having a communication means for obtaining information from the storage means, said connector to allow access to the liquid for processing thereof based on the information.

(emphasis added)

The combination of underlined features recited in claim 1 finds no counterpart or derivative basis in any of the Zugibe, McCarrick et al. and Leatherman references, taken in any permutation or combination of such references.

A review of the record shows that differences in position between the Examiner and the applicants in the prior prosecution have resulted from a lack of concurrence about the meaning of the foregoing claim terminology.

The purpose of the immediately following discussion is to clearly delineate the sense and meaning of applicants' claim language, so that the patentable distinction of applicants' claims is fully appreciated.

The legal standard for claim construction is clear that absent an express intent to impart a novel meaning to a claim term, the words in a claim have the **ordinary and customary meanings attributable to them by those of ordinary skill in the art**, Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1298 (Fed. Cir. 2003), as viewed in the context of the written

description and drawings of the specification, DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1324 (Fed. Cir. 2001).

Given the foregoing standards for interpretation of the claim language at issue, it is clear that the term “coupled” in the recital of

a storage means coupled to a portion of said container and for storing information relating to the liquid

means that the information storage means is physically linked to the container,

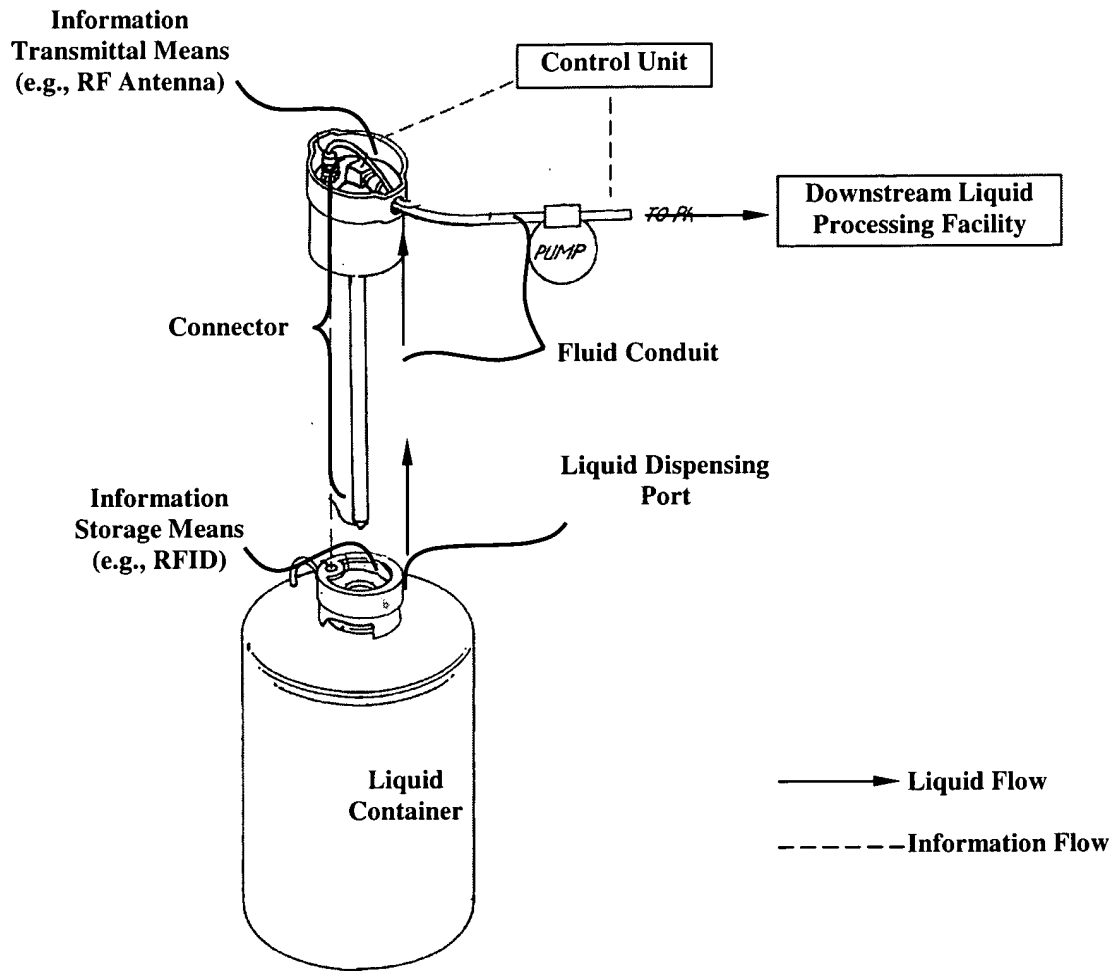
and that the term “connector” in the recital of

a connector for physically coupling to the portion and having a communication means for obtaining information from the storage means, said connector to allow access to the liquid for processing thereof based on the information

means a structural component that connects to the liquid in the container for dispensing same, upon being physically coupled to the liquid-containing vessel.

The specification at page 4, line 21 discloses that “Cap 38 includes radio frequency identification (RFID) tag 42” in describing the FIG. 2 embodiment. The specification then goes on at page 5, lines 19-20 to state that “cap 38 is threadably connected to container opening 44 of container 18” and at lines 23-24 states that “[A]fter cap 38 has been secured onto container 18a, container 18a is transported to a processing system.”

Such arrangement is also shown in FIG. 3 of the application, reproduced in simplified and labeled form on the following page.



It is apparent from such disclosure that the information storage means as “coupled” is physically linked to the container, and such physical linking is consistent with the common sense and meaning of such term (“coupled”).

In this disclosed illustrative structure, the RFID tag is on the cap which in turn is on the container. The tag therefore is coupled to the container in a tangible, structural fashion, i.e., the tag is

structurally linked, which is the sense and meaning that would be attributed by one of skill in the art based on the disclosure of the instant application.

The specification at page 3, lines 3-5 describes the character of the “connector”:

“A connector is coupled with the cap such that the liquid can be dispensed from the container through the connector.”

This is followed by the description of a preferred arrangement of the liquid handling system of the invention, at page 3, lines 10-14:

“In another preferred embodiment, the connector further comprises a connector head and a probe extending from the connector head. The probe is insertable through a center of the cap and into the opening. The probe has a flow passage. A pump is coupled with the probe and with the flow passage for pumping liquid through the probe and with the flow passage for pumping liquid through the probe and the flow passage.”

See also the simplified, labeled rendition of FIG. 3 (on the previous page) of the liquid container and the connector that is shown positioned above the container for subsequent downward insertion into the interior volume of the container, as described at page 6, lines 15-17:

“[C]ontinued pressure on connector 50 then allows connector 50 to be moved immediately adjacent cap 38. Probe 68 then is in communication with the interior of container 18a.”

Subsequently, the liquid is pumped out of the container through the probe of the connector. See page 3, lines 12-14:

“The probe has a flow passage. A pump is coupled with the probe and with the flow passage for pumping liquid through the probe and the flow passage.”

It therefore is apparent that the term “connector” in the recital of

a connector for physically coupling to the portion and having a communication means for obtaining information from the

storage means, said connector to allow access to the liquid for processing thereof based on the information

means a structural component that connects to the liquid in the container for dispensing same.

Such combination of features, of

a storage means coupled to a portion of said container and for storing information relating to the liquid; and

a connector for physically coupling to the portion and having a communication means for obtaining information from the storage means, said connector to allow access to the liquid for processing thereof based on the information

as components of a liquid handling system, are not present in the cited references, whether taken singly or in any possible combination.

Zugibe discloses no information storage means coupled to a portion of the container. Instead, the components of the refrigerant recovery and analysis system of Zugibe identified by the Examiner (at page 2, paragraph 2, sub-paragraph 2 of the January 30, 2004 Office Action) as storage means, i.e., master control 30 and display 32 of the terminal device in Zugibe, are not physically linked to the container, but rather are physically independent, separated and remote from the Zugibe container.

It is pointed out here that by being physically linked (“coupled”) to the container, the information storage means of the claimed invention is part of a unitary vessel assembly, e.g., including the container, the cap and the information storage means in the cap. See for example page 5, lines 23-24 of the instant application:

“After cap 38 has been secured onto container 18a, container 18a is transported to a processing system.”

In other words, the capped container (wherein the information storage means is on the cap) is portable, and adapted for transport from a filling system to a “processing system for dispensing and processing liquid” (page 3, lines 19-20). This unitary character of the vessel assembly (i.e., container + cap + information storage means) is apparent from FIG. 2, showing the RFID tag-incorporating cap in exploded relationship to the container, before the cap is secured on the container. See also FIG. 4 showing the cap, as a unitary assembly, being mated with the connector 50.

In applicants’ claimed invention, therefore, the information storage means is “on-board” the vessel assembly, and such assembly thus is fundamentally different from the transfer vessel and storage reservoir of Zugibe, which have no coupled information storage means thereon.

The secondary reference of McCarrick et al. was proposed in the Office Action to be combined with Zugibe.

McCarrick et al. discloses a gas cylinder tracking system that utilizes one or more gas cylinders each having an inventory collar thereon, and a data read/write device for writing data to and reading data from such inventory collar (McCarrick, et al., column 1, lines 50-58). The data read/write device is either an inventory control probe or an inventory control docking station with a control module (McCarrick, et al., column 3, lines 1-50).

McCarrick et al. thus describes an information storage means on the gas cylinder, but there is no

connector for physically coupling to the portion and having a communication means for obtaining information from the storage means, said connector to allow access to the liquid for processing thereof based on the information,

as required by applicants' claim 1. McCarrick et al.'s system lacks a "connector," which as discussed above in the system of applicants' claimed invention is a structural component that connects to the liquid in the container for dispensing same, and there is no "connector ... access to the liquid for processing thereof based on the information," since there is no liquid processing being conducted in McCarrick et al. The system of McCarrick et al. instead is a passive system. McCarrick et al.'s system may record vessel weight, instantaneous flow rate of gas and/or total flow rate of gas, and responsively trigger alarms or gas cabinet access locks, but there is no teaching or suggestion in McCarrick et al. of "access to the liquid for processing thereof based on the information."

The Examiner has proposed to combine Zugibe and McCarrick et al. (page 6 of the Office Action) for the stated reason that these references "are analogous art since they both concern computer controlled gas tracking and release systems," and that therefore

"it would have been obvious to one of ordinary skill in the art to use the gas tracking and release system of McCarrick et al. The suggestion/motivation would have been to provide a wide variety of data on the gas to the release system, such data including inventory data. See abstract of McCarrick et al., for example.

Therefore, it would have been obvious to obtain the invention as specified in Claims 1-31."

(Office Action, page 6, lines 13-19)

The statement that the Zugibe and McCarrick et al. systems are analogous as both concern computer controlled gas tracking and release systems is misdescriptive of the relationship between the systems disclosed in these two references for purposes of §103. The respective systems could equally be stated to be "analogous" as fluid apparatus, hardware/software systems, or tangible things able to be constructed and operated on the planet Earth, but that would still not make them interchangeable or combinable in any logical manner.

Considering Zugibe in greater detail, such reference is directed to a point of sale device for qualitatively and quantitatively analyzing refrigerant compositions and withdrawing the refrigerant from a closed transfer vessel to a mass transfer reservoir (column 1, lines 7-10 of Zugibe).

In Zugibe, a transfer vessel containing a collected refrigerant, e.g., from an air conditioning system, is mounted on a scale, and a sample of refrigerant is removed to a quality analyzer for qualitative analysis, which if acceptable, is followed by evacuation pumping of the refrigerant into a storage reservoir. The scale weight of the refrigerant is determined as the difference between the full transfer vessel and the empty (after evacuation thereof) transfer vessel. The resultingly determined weight of refrigerant, together with the quality of the refrigerant determined by the qualitative analysis analyzer, enables the computational means of the system to determine an economic value of the refrigerant and print a receipt or other output of the value determination.

The refrigerant withdrawn from the transfer vessel in Zugibe may optionally be subjected to recycling/reclamation, e.g., distillation, before transfer to the storage reservoir (see FIG. 6 of Zugibe).

In sum, Zugibe describes a system for recovering and analyzing volatile refrigerants in which refrigerant in a transfer vessel is analyzed, following which the transfer vessel is evacuated. The transfer vessel and storage reservoir of Zugibe are “dumb” vessels, lacking any information storage means on such respective vessels.

McCarrick et al. as discussed above lacks a “connector.” McCarrick et al. discloses a passive system in which vessel weight, instantaneous flow rate of gas and/or total flow rate of gas may be

determined, and used to trigger alarms or gas cabinet access locks, but there is no teaching or suggestion in McCarrick et al. of a connector allowing “access to the liquid for processing thereof based on the information” as required by applicants’ claim 1.

Against this background of the teachings of the respective references, the Examiner has urged that features of McCarrick et al. be extracted from that reference and imported into the system of Zugibe, on the basis of “suggestion/motivation ..to provide a wide variety of data on the gas to the release system, such data including inventory data” (page 6, lines 15-16 of Office Action).

However, there is no need for inventory data capability to be incorporated in the Zugibe system, for the simple reason that Zugibe is interested in only three parameters – refrigerant quality, refrigerant quantity and refrigerant price (value).

Since the refrigerant is brought to the point of delivery apparatus of Zugibe in a transfer vessel, sampled for quality in an external analyzer, weighed for quantity determination, and emptied of refrigerant, following which “the transfer vessel is immediately returned to the user” as described at column 2, lines 51-52 of Zugibe, there is no reason or basis for providing the transfer vessel with a data collar or other information storage means.

This is underscored by the disclosure in Zugibe that in current practice, “these transfer vessels generally meet a ‘least common denominator’” (Zugibe, column 2, lines 49-50), i.e., they are cheap reusable vessels. There is therefore no incentive to make these vessels into “smart” containers, with an attendant increase in cost, complexity, susceptibility to failure, and associated requirements for signal processing capability and infrastructure, etc.

This lack of motivation for the Examiner's proposed modification of Zugibe is further underscored by Zugibe's disclosure relating to the immediate return of the transfer vessel to the user, and the provision of features facilitating such immediate return:

"According to the present invention, the transfer vessel is immediately returned to the user, so that advanced features, such as quick connect couplings, gauges, highly functional dip tubes, high quality valves and the like may be included. For example, a quick-connect valve will save time and wear on the valve fitting, a distant [sic – "distinct"?] concern for an exchange transfer vessel."

(Zugibe, column 2, lines 51-57)

Although these features ("quick connect couplings, gauges, highly functional dip tubes, high quality valves and the like") will of course increase the cost of the transfer vessel, they will also facilitate rapid sampling, weighing and evacuation operations, as required for immediate return of the transfer vessel to the user.

These additional "features" enumerated by Zugibe, however, do not include any information storage means, but rather are mechanical features ("quick connect couplings, gauges, highly functional dip tubes, high quality valves and the like"). This absence of any information storage means therefore provides further evidence that Zugibe does not in any way contemplate the modification that the Examiner has contended would be suggested/motivated.

Additionally, as regards the storage reservoir of Zugibe, there is likewise no suggestion or motivation for incorporating any information storage means thereon, in the context of Zugibe's teachings about features that may be implemented in connection with such storage vessel.

Zugibe discloses that

"In general, the storage reservoir is a standard 1000 lb. U.S. D.O.T. approved shipping vessel, as discussed above, which does not itself include a quantitative contents gage or level."

Zugibe, column 10, lines 21-23).

This disclosure is followed by Zugibe's description of components that may be implemented in connection with the storage reservoir, including:

- a weight sensor (Zugibe, column 10, line 24);
- a stop fill switch (Zugibe, column 10, line 26);
- a programmed controller keeping track of the refrigerant transferred to the storage reservoir (Zugibe, column 10, lines 33-35);
- a float switch (Zugibe, column 15, line 29),
- a pressure sensor (Zugibe, column 15, line 44),
- a scale (Zugibe, column 15, line 34),
- a heat sensitive linear sensor (Zugibe, column 15, line 57), and
- an emergency cutoff (Zugibe, column 15, line 65).

This disclosure of such "accessorizing" of the storage reservoir is sufficiently detailed and extensive as to suggest that the patentee exhaustively considered the variety of possible features and components of the storage reservoir, and based on such consideration set forth a comprehensive listing of accessories that could be deployed with such vessel – it is notable, however, that such comprehensive listing includes no "information storage means" of any kind on the storage reservoir.

Further, since the weight of the refrigerant in the storage reservoir has already been determined (by the provision of electronic scales for the transfer vessel and the storage reservoir), and since the quality of the refrigerant going to the storage reservoir has already been established (at the

point of sampling of refrigerant from the transfer vessel to determine such quality), the “inventory data” needs of the storage reservoir have already been accommodated.

There is therefore no reason for incorporation of any information storage means on the storage reservoir, since such incorporation would be superfluous and needlessly increase the cost, complexity and support requirements for such vessel.

In sum, there is no basis whatsoever for the hypothesized combination of features from McCarrick et al. with features from Zugibe. There is no suggestion in either of such references for the hypothesized combination, and there is no motivation derivable from the disclosures of such references for such hypothesized combination.

Although the foregoing discussion has been directed to the patentable distinction of claim 1 over the cited Zugibe and McCarrick et al. references, it will be appreciated that corresponding distinguishing remarks are apposite to the patentability of remaining claims 2-16, 18-24 and 30-31 previously rejected on such references.

Concerning the alternative rejection of claims under 35 USC 103(a) based on Leatherman, it is to be noted that Leatherman fails to disclose or suggest:

**a storage means coupled to a portion of said container and
for storing information relating to the liquid**

as a component of a liquid handling system (instant claim 1).

Leatherman, as shown in FIG. 1 of such patent, discloses a conventional underground gasoline storage tank (22). Such storage tank has no information storage means thereon, and therefore fails to meet the requirement of applicants’ invention of “a storage means coupled to a portion of said container and for storing information relating to the liquid,” as recited in claim 1.

Further, Leatherman lacks

a connector for physically coupling to the portion and having a communication means for obtaining information from the storage means, said connector to allow access to the liquid for processing thereof based on the information

since Leatherman's system is a gas pump/underground gasoline storage tank fixed installation, in which there is no discrete connector that can be selectively physically coupled to the container ("a connector for physically coupling to the portion [of the container] ... to allow access to the liquid"). Instead, Leatherman describes a fixed-in-place underground gasoline storage tank, having a standpipe protruding into the tank (see FIG. 1 of Leatherman, and the dashed line representation of the standpipe extending into the interior of the tank). Leatherman's standpipe is not a "connector" that is physically coupleable – it is already fixedly joined to the tank. In fact, logic dictates that such standpipe is welded or otherwise permanently secured to the tank, so that there is no frictional movement between the standpipe and the tank that could cause spark and fire/explosion.

In sum, there is no basis in Leatherman for an information storage means on the container, or of a connector constituting a discrete structural element that can be selectively physically coupled ("connector for physically coupling") to the container for accessing liquid.

Claim 1 therefore is patentably distinguished over Leatherman. For corresponding reasons, claims 2-16, 18-24 and 30-31 are likewise patentable over Leatherman.

As mentioned, claims 32-66 have been added to encompass aspects of the invention disclosed in the instant application. Such claims likewise patentably distinguish over Zugibe in view of McCarrick et al., and over Leatherman.

Specifically, independent claim 32, from which claims 33-56 directly or indirectly depend, recites, *inter alia*,

“a cap securable to the container opening and including a radio frequency identification tag in the cap, the cap (i) being arranged when secured to the container opening to seal the container for containment of liquid therein, (ii) including a rupturable membrane therein, and (iii) being engageable with a connector including a connector head and probe extending therefrom, wherein the probe is insertable through the rupturable membrane into the container, and wherein the probe has a liquid flow passage therethrough” (emphasis added),

which the examiner in the April 20, 2004 telephonic discussion of the application conceded was not taught or suggested in the cited art.

Claims 57-59 recite specific vessel structures wherein the vessel contains a liquid for manufacturing integrated circuits, such as a photoresist.

Claim 60 recites a liquid handling system with electronic information storage, comprising a multiplicity of liquid storage and dispensing systems as claimed in claim 1. Claims 61-64 are dependent thereunder.

Claim 65 depends from claim 1 and requires that the container be portable and contain a photoresist liquid.

Claim 66 recites, *inter alia*,

“a rupturable membrane closing the opening in the cap, the rupturable membrane being rupturable when the liquid dispensing tube is inserted through the opening to place the liquid dispensing tube in contact with liquid in the vessel,”

which the examiner in the April 20, 2004 telephonic discussion of the application conceded was not taught or suggested in the cited art.

For all these reasons, allowance of all claims 1-16, 18-24 and 30-66 therefore is requested.

Fee Payable for Added Claims

In connection with the addition of new claims 32-66 herein, including 35 new claims, of which 5 are of independent form, an added claims fee of \$1060 is due.

A Credit Card Authorization Form authorizing charging of such amount is enclosed.

Authorization is further given to charge any other fee or amount that may be properly payable in connection with the filing and entry of this response, to Deposit Account No. 08-3284 of Intellectual Property/Technology Law.

Additional References Noted by Examiner in April 20, 2004 Teleconference

In the course of the April 20, 2004 teleconference with the undersigned attorney, the examiner noted two references in addition to those previously of record.

The first reference was U.S. Patent Publication No. 2003/0141973 to Yeh et al., published July 31, 2003. After noting this reference, the examiner conceded that it had an effective date after the filing date of the present application, and therefore was not prior art.

The second reference was U.S. Patent 6,556,027 issued April 29, 2003 to Rodney H. Banks. Such reference discloses an on-line corrosion monitor including an electrode-bearing probe module which is coupled to a circuit board, power supply and other electronic componentry in a control module by means of a cable. The probe module includes a resistor module. The probe module is placed in a flowing liquid stream to monitor corrosivity thereof.

The apparatus of banks does not include a liquid vessel having a cap with an RFID tag or other information storage means on a container, it does not include any connector with a probe insertable through a cap to engage the information storage means on the container, and Banks does not teach or suggest any other of numerous features that variously distinguish applicant's claims.

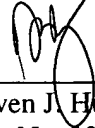
Banks therefore does not alter the patentable distinction of the presently pending claims.

CONCLUSION

Based on the foregoing, all pending claims 1-16, 18-24 and 30-66 are patentable over the cited Zugibe, McCarrick et al. and Leatherman references.

Issue of a Notice of Allowance therefore is requested.

Respectfully submitted,



Steven J. Hultquist
Reg. No. 28021
Attorney for Applicants
Telephone: (919) 419-9350

Attorney File No.: 522 (7489)